What is claimed is:

1. A method for preparing a plurality of phosphor or scintillator sheets or panels having flexible supports or substrates by coating a phosphor or scintillator layer within a sealed zone, wherein said zone comprises at least two cylindrical carrier rollers for carrying a flexible substrate exceeding dimensional formats of desired phosphor or scintillator sheets or panels with a factor of at least 5, wherein said cylindrical carrier rollers each have an axis in a parallel arrangement with one another; wherein said zone comprises at least one crucible containing a mixture of raw materials providing desired phosphor or scintillator compositions for said layer; and wherein said zone comprises a laminating unit; wherein said method comprises the steps of mounting said flexible substrate onto said carrier rollers, vapor depositing said phosphor or scintillator layer having a desired phosphor or scintillator composition onto said flexible substrate, and laminating said phosphor or scintillator layer, thereby covering said layer with a protective foil; further comprising the step of cutting said layer into sheets or panels having desired formats, and wherein at least during said vapor depositing step said zone is maintained under vacuum conditions as a vacuum chamber.

2. Method according to claim 1, wherein said zone further comprises a delaminating unit, and wherein a step of delaminating said flexible substrate, when provided with an initial protective laminate foil, is included, before said step of vapor depositing said phosphor or scintillator composition.

3. Method according to claim 1, wherein said steps of laminating said phosphor or scintillator layer and said step of delaminating said flexible substrate are both performed under vacuum conditions.

4. Method according to claim 2, wherein said steps of laminating said phosphor or scintillator layer and said step of delaminating said flexible substrate are both performed under vacuum conditions.

5. Method according to claim 1, wherein said flexible substrate support is an anodized aluminum support layer, covered with a protective foil.

6. Method according to claim 2, wherein said flexible substrate support is an anodized aluminum support layer, covered with a protective foil.

7. Method according to claim 3, wherein said flexible substrate support is an anodized aluminum support layer, covered with a protective foil.

8. Method according to claim 4, wherein said flexible substrate support is an anodized aluminum support layer, covered with a protective foil.

9. Method according to claim 5, wherein said anodized aluminum support layer has a thickness in the range of from 50 to 500 μm.

10. Method according to claim 6, wherein said anodized aluminum support layer has a thickness in the range of from 50 to 500 μm.

11. Method according to claim 7, wherein said anodized aluminum support layer has a thickness in the range of from 50 to 500 μm.

12. Method according to claim 8, wherein said anodized aluminum support layer has a thickness in the range of from 50 to 500 μm.

13. Method according to claim 1, wherein in said mounting step two ends of the substrate support are glued together with a heat resistant adhesive, with one or more rivets or with a combination thereof.

14. Method according to claim 2, wherein in said mounting step two ends of the substrate support are glued together with a heat resistant adhesive, with one or more rivets or with a combination thereof.

15. Method according to claim 1, wherein one carrier roller is rotating, in a controlled way, by means of a motor around its axis, whereas other roller(s) is(are) rotating by movement of said one roller; and wherein while rotating, the position of the flexible substate on the rollers is controlled by means of an optical positioning sensor, coupled back to pressure regulating cylinder(s), providing position adjustment of said flexible substrate.

16. Method according to claim 2, wherein one carrier roller is rotating, in a controlled way, by means of a motor around its axis, whereas other roller(s) is(are) rotating by movement of said one roller; and wherein while rotating, the position of the flexible substate on the rollers is controlled by means of an optical positioning sensor, coupled back to pressure regulating cylinder(s), providing position adjustment of said flexible substrate.

17. Method according to claim 2, wherein said protective laminate foil, initially laminated onto the said flexible substrate, is removed in said delaminating step, once said flexible substrate has been put on tension.

18. Method according to claim 4, wherein said protective laminate foil, initially laminated onto the said flexible substrate, is removed in said delaminating step, once said flexible substrate has been put on tension.

19. Method according to claim 6, wherein said protective laminate foil, initially laminated onto the said flexible substrate, is removed in said delaminating step, once said flexible substrate has been put on tension.

20. Method according to claim 8, wherein said protective laminate foil, initially laminated onto the said flexible substrate, is removed in said delaminating step, once said flexible substrate has been put on tension.

21. Method according to claim 10, wherein said protective laminate foil, initially laminated onto the said flexible substrate, is removed in said delaminating step, once said flexible substrate has been put on tension.

22. Method according to claim 12, wherein said protective laminate foil, initially laminated onto the said flexible substrate, is removed in said delaminating step, once said flexible substrate has been put on tension.

23. Method according to claim 14, wherein said protective laminate foil, initially laminated onto the said flexible substrate, is removed in said delaminating step, once said flexible substrate has been put on tension.

24. Method according to claim 16, wherein said protective laminate foil, initially laminated onto the said flexible substrate, is removed in said delaminating step, once said flexible substrate has been put on tension.

25. Method according to claim 17, wherein said protective laminate foil is removed under vacuum by delamination, making use of a delamination unit present in the vacuum chamber.

26. Method according to claim 18, wherein said protective laminate foil is removed under vacuum by delamination, making use of a delamination unit present in the vacuum chamber.

27. Method according to claim 19, wherein said protective laminate foil is removed under vacuum by delamination, making use of a delamination unit present in the vacuum chamber.

28. Method according to claim 20, wherein said protective laminate foil is removed under vacuum by delamination, making use of a delamination unit present in the vacuum chamber.

29. Method according to claim 21, wherein said protective laminate foil is removed under vacuum by delamination, making use of a delamination unit present in the vacuum chamber.

30. Method according to claim 22, wherein said protective laminate foil is removed under vacuum by delamination, making use of a delamination unit present in the vacuum chamber.

31. Method according to claim 23, wherein said protective laminate foil is removed under vacuum by delamination, making use of a delamination unit present in the vacuum chamber.

32. Method according to claim 24, wherein said protective laminate foil is removed under vacuum by delamination, making use of a delamination unit present in the vacuum chamber.

33. Method according to claim 1, wherein said carrier rollers are thermally isolated from said flexible substrate support by means of a thermal isolation layer and/or a plurality of heat-resistant coiled springs, mounted over the length of the cylinders in such a way that the said coiled springs make an angle in the range of 20°

to 40° with a line, parallel with the axis of said cylindrical carrier rollers.

34. Method according to claim 2, wherein said carrier rollers are thermally isolated from said flexible substrate support by means of a thermal isolation layer and/or a plurality of heat-resistant coiled springs, mounted over the length of the cylinders in such a way that the said coiled springs make an angle in the range of 20° to 40° with a line, parallel with the axis of said cylindrical carrier rollers.

35. Method according to claim 1, wherein during said vapor depositing step the temperature of the said flexible substrate is maintained in the range from 150°C to 300°C by means of regulable heaters and by an adressable cooling unit installed along the support.

36. Method according to claim 2, wherein during said vapor depositing step the temperature of the said flexible substrate is maintained in the range from 150°C to 300°C by means of regulable heaters and by an adressable cooling unit installed along the support.

37. Method according to claim 35, wherein said cooling unit is build up of a black body cooling element, cooled with water at room temperature on the backside, and of an addressable (opened or closed) screen of louvers in form of multiple slats on the front or support side of said cooling element.

38. Method according to claim 36, wherein said cooling unit is build up of a black body cooling element, cooled with water at room temperature on the backside, and of an addressable (opened or closed) screen of louvers in form of multiple slats on the front or support side of said cooling element.

39. Method according to claim 35, wherein said temperature is measured over the whole width of said flexible substrate by means of a set of pyrometers.

40. Method according to claim 36, wherein said temperature is measured over the whole width of said flexible substrate by means of a set of pyrometers.

41. Method according to claim 37, wherein said temperature is measured over the whole width of said flexible substrate by means of a set of pyrometers.

42. Method according to claim 38, wherein said temperature is measured over the whole width of said flexible substrate by means of a set of pyrometers.

43. Method according to claim 35, wherein said temperature is measured and registrated and wherein a temperature profile over the whole width of said flexible substrate is used as input for steering substrate heating and/or substrate cooling.

44. Method according to claim 36, wherein said temperature is measured and registrated and wherein a temperature profile over the whole width of said flexible substrate is used as input for steering substrate heating and/or substrate cooling.

45. Method according to claim 37, wherein said temperature is measured and registrated and wherein a temperature profile over the whole width of said flexible substrate is used as input for steering substrate heating and/or substrate cooling.

46. Method according to claim 38, wherein said temperature is measured and registrated and wherein a temperature profile over the whole

width of said flexible substrate is used as input for steering substrate heating and/or substrate cooling.

47. Method according to claim 39, wherein said temperature is measured and registrated and wherein a temperature profile over the whole width of said flexible substrate is used as input for steering substrate heating and/or substrate cooling.

48. Method according to claim 40, wherein said temperature is measured and registrated and wherein a temperature profile over the whole width of said flexible substrate is used as input for steering substrate heating and/or substrate cooling.

49. Method according to claim 41, wherein said temperature is measured and registrated and wherein a temperature profile over the whole width of said flexible substrate is used as input for steering substrate heating and/or substrate cooling.

50. Method according to claim 42, wherein said temperature is measured and registrated and wherein a temperature profile over the whole width of said flexible substrate is used as input for steering substrate heating and/or substrate cooling.

51. Method according to claim 1, wherein said sealed zone further comprises as a controlling part a thickness measuring system, determining thickness while vapor depositing said scintillator or phosphor layer, wherein said measuring system is based on capacitance measurements.

52. Method according to claim 2, wherein said sealed zone further comprises as a controlling part a thickness measuring system, determining thickness while vapor depositing said scintillator or phosphor layer, wherein said measuring system is based on capacitance measurements.

53. Method according to claim 1, wherein the said flexible substrate is spatially surrounded by a reflector cage for heat radiation.

54. Method according to claim 2, wherein the said flexible substrate is spatially surrounded by a reflector cage for heat radiation.

55. Method according to claim 1, wherein said protective foil, provided by the step of laminating said foil after depositing said phosphor or scintillator layer is a temporary protection layer removed by a delaminating step before or after cutting; or a lasting protective foil layer.

56. Method according to claim 2, wherein said protective foil, provided by the step of laminating said foil after depositing said phosphor or scintillator layer is a temporary protection layer removed by a delaminating step before or after cutting; or a lasting protective foil layer.

57. Method according to claim 1, wherein said protective foil, provided by the step of laminating said foil after depositing said phosphor or scintillator layer is a lasting protection layer, wherein said lasting protection layer is provided from a protection layer package, comprising a release layer that is removed in a further delaminating step and that is winded up on an upwinding roller.

58. Method according to claim 2, wherein said protective foil, provided by the step of laminating said foil after depositing said phosphor or scintillator layer is a lasting protection layer, wherein said lasting protection layer is provided from a protection layer package, comprising a release layer that is removed in a further delaminating step and that is winded up on an upwinding roller.

59. Method according to claim 2, wherein said protective foil, provided by the step of laminating said foil after depositing said phosphor

or scintillator layer is a lasting protection layer, wherein said lasting protection layer is provided from a protection layer package, comprising a release layer removed in a further delaminating step by means of the same delaminating unit used during the delaminating step of said flexible substrate, when initially provided with a protective laminate foil.

60. Method according to claim 1, wherein cutting said flexible substrate, coated with a phosphor or scintillator layer into sheets or panels having desired formats, proceeds out of the vacuum chamber.

61. Method according to claim 2, wherein cutting said flexible substrate, coated with a phosphor or scintillator layer into sheets or panels having desired formats, proceeds out of the vacuum chamber.

62. Method according to claim 1, further characterized by the step of laminating said sheet or panel substrate carrying said phosphor or scintillator layer onto a carrier layer.

63. Method according to claim 2, further characterized by the step of laminating said sheet or panel substrate carrying said phosphor or scintillator layer onto a carrier layer.

64. Method according to claim 62, wherein said carrier layer is selected from the group consisting of a flexible or rigid polymer layer, a glass support, a carbon fibre plate and a rigid metal sheet.

65. Method according to claim 63, wherein said carrier layer is selected from the group consisting of a flexible or rigid polymer layer, a glass support, a carbon fibre plate and a rigid metal sheet.

66. Method according to claim 1, wherein said step of vapor depositing said phosphor or scintillator compositions is initiated by a vapor flow of raw materials from one or more crucible(s), and wherein said vapor flow is generated by adding energy to said raw materials and said container(s), by thermal, electric, or electromagnetic energy or a combination thereof.

67. Method according to claim 2, wherein said step of vapor depositing said phosphor or scintillator compositions is initiated by a vapor flow of raw materials from one or more crucible(s), and wherein said vapor flow is generated by adding energy to said raw materials and said container(s), by thermal, electric, or electromagnetic energy or a combination thereof.

68. Method according to claim 1, wherein said step of vapor depositing said phosphor or scintillator compositions proceeds by physical vapor deposition, by chemical vapor deposition or a by combination of physical and chemical vapor deposition.

69. Method according to claim 2, wherein said step of vapor depositing said phosphor or scintillator compositions proceeds by physical vapor deposition, by chemical vapor deposition or a by combination of physical and chemical vapor deposition.

70. Method according to claim 1, wherein said raw materials comprise, as phosphor precusors, at least $Cs_xEu_yX'_{x+\alpha y}$, wherein the ratio of x to y exceeds a value of 0.25, wherein $\alpha \geq 2$ and wherein X' is a halide selected from the group consisting of Cl, Br and I and combinations thereof.

71. Method according to claim 2, wherein said raw materials comprise, as phosphor precusors, at least $Cs_xEu_yX'_{x+\alpha y}$, wherein the ratio of x to y exceeds a value of 0.25, wherein $\alpha \geq 2$ and wherein X' is a

halide selected from the group consisting of Cl, Br and I and combinations thereof.

72. Method according to claim 1, wherein said raw materials comprise, as phosphor precusors, at least CsBr and $Cs_xEu_yX'_{x+\alpha y}$, wherein the ratio of x to y exceeds a value of 0.25, wherein $\alpha \geq 2$ and wherein X' is a halide selected from the group consisting of Cl, Br and I and combinations thereof.

73. Method according to claim 2, wherein said raw materials comprise, as phosphor precusors, at least CsBr and $Cs_xEu_yX'_{x+\alpha y}$, wherein the ratio of x to y exceeds a value of 0.25, wherein $\alpha \geq 2$ and wherein X' is a halide selected from the group consisting of Cl, Br and I and combinations thereof.

74. Method according to claim 1, wherein wherein said phosphor layer is a binderless layer of a photostimulable CsBr:Eu phosphor.

75. Method according to claim 2, wherein wherein said phosphor layer is a binderless layer of a photostimulable CsBr:Eu phosphor.